Effect of Advanced Maternal Age on Pregnancy Outcomes

[1] Nagwa Ibrahim Hussein,[2] Elsaida Gouda Nasr,[3] Shadia Saady Mohamed, [4] Marwa yehia Mostafa.

[1] Clinical Instructor at Technical Health Institute, Beni- Suef University, Egypt.

[2] Assistant Professor of Maternal and Neonatal Health Nursing Faculty of Nursing, Fayoum University, Egypt.

[3 & 4] Lecturers of Maternal and Neonatal Health Nursing Faculty of Nursing, Fayoum University, Egypt.

Abstract

Background: Age at childbearing has trended older among women in developed countries and has been associated with sub-optimal obstetric outcomes. **Aim of the study:** To evaluate the effect of advanced maternal age on pregnancy outcomes. **Study design:** A descriptive design was used to investigate the current research problem. **Setting:** The study was conducted at obstetrics department at Beni-Suef university hospital. **Study subjects:** A purposive sample of 100 pregnant advanced age women. **Tools of data collection:** Tool 1. Structured interview questionnaire to collect maternal socio-demographic data, tool 2. The impact of advanced maternal age on fetal outcomes and tool 3. The impact of advanced maternal age on mother outcomes. **Results:** The most of studied women were aged between 35 and 40 years, more than one third of studied women can't read and write, almost two thirds were married between 10 and 20 years, almost two thirds were rural residents and most of them were not working. Less than one fifth of women were primipara, more than half of them were multipara and almost one fourth of them were grandmultipara. **Conclusion**: The majority of newborns had low APGAR scores <7 at the first and fifth minutes, over one-third of mothers experienced postpartum hemorrhage difficulties, half of women experienced pregnancy complications, and all of them were delivered by caesarean section, with emergency caesarean section recommended in over half of them. **Recommendations**: Nurses should encourage advanced maternal age women to attend antenatal visits regularly from the beginning of pregnancy till birth for early detection and proper management of complications. Routine maternal healthcare services to support first-time mothers in achieving optimal health outcomes.

Key Words: Advanced maternal age, Fetal outcomes, Maternal outcomes.

Introduction:

Women above 35 during pregnancy are referred to as advanced maternal age. The mid-to-late-30s see the largest drop in fertility, when fertility declines ovaries produce fewer and lower quality eggs. Getting pregnant after the age of 35 is not impossible; in fact, it is quite possible. Therefore, the age of 35 is when fertility begins to decrease more quickly and the likelihood of pregnancy difficulties increases ***(American College of Obstetricians and Gynecologist, 2022)*.**

The rise in childbearing age is a worldwide social problem that has been intensified in recent decades in the majority of nations with diverse cultural, social and economic circumstances ***(Šprocha etal., 2020)*.** At Banha Teaching Hospital of Al-Azhar University in Egypt, 26% of pregnant women were older than 35, and 4% were older than 40 ***(Mahmoud, 2024)*.**

Increased mother age is linked to a decline in egg quality, which is one of the reasons why problems increase after the age of 35.This implies that the quality of eggs decreases as women age. Chromosome abnormalities are more likely to result from "older" eggs. Another factor is that as women age, their risk of developing the majority of chronic illnesses rises. As women age, their bodies simply react to these environments in different ways. Pregnancy and childbirth may be impacted by these long-term health issues. For instance, the likelihood of having high blood pressure at age 35 is higher than at age 25, even if the woman is not pregnant ***(Lampinen etal., 2020)*.**

There are hazards associated with all pregnancies, but at advanced maternal age, women and babies are more susceptible to the following conditions: gestational diabetes, preterm birth or low birth weight, miscarriage, down syndrome or other

genetic problems, stillbirth, cesarean section, preeclampsia and twins pregnancy ***(Khalil etal., 2023)*.**

These issues have significant effects on the mother's and her child's long-term health in addition to throughout pregnancy and delivery. It is commonly known that infants born into an intrauterine environment that is not optimum, resulting in growth limitation, are more likely to develop cardiovascular disease in the future ***(Davidge etal., 2021)***. Furthermore, women who have preeclampsia are at a higher risk of developing cardiovascular disease later in life and are almost twice as likely to die from it as they age. ***(Gluckman etal., 2020)*.**

By advising women of advanced maternal age to attend all prenatal appointments and screenings, maintain blood sugar control if they have diabetes, take a prenatal vitamin that contains folic acid, exercise frequently, stop smoking or using tobacco products, and abstain from alcohol, the maternity nurse plays a significant role in prenatal visits. Eat a diet rich in fruits, vegetables, lean meats, and whole grains, manage stress, get adequate sleep, and maintain a healthy weight range ***(Santos etal., 2019)***. Given the higher risk of stillbirth for women who are older, especially those who are extremely old, it makes sense to offer them elective cesarean delivery or induction of labor at 39 weeks gestation as part of intrapartum care ***(Impact, 2023)***.

Significance of the study:

Women in Saudi Arabia and other Middle Eastern countries continue to have children after the age of 35 because of the secure financial condition of their families, where the husband is the primary provider, and their desire to have large families (**Fayed et al., 2024)**. Advanced maternal age pregnancy was significantly associated with pregnancy induced hypertension,

ante partum hemorrhage & cesarean delivery. Furthermore, advanced maternal age pregnancy was also increasingly associated with adverse perinatal outcomes like preterm delivery, low birth weight, perinatal death and low fifth minute APGAR score **(Mehari etal.,2020)**. Thus, the aim of this study was to evaluate the effect of advanced maternal age on the pregnancy outcomes.

Aim of the Study

Was to evaluate the effect of advanced maternal age on the pregnancy outcomes.

The aim of this study was achieved through the following objectives:

- Determine the effect of advanced maternal age on mother outcomes,
- Identify the effect of advanced maternal age on infant outcomes.

Research Question:

What is the effect of advanced maternal age on pregnancy outcomes?

Subjects and Methods

The technique was provided under the following four designs: technical,operational, administrative, and statistical designs in order to meet the study's objectives and address the research issues.

I. Technical design

Research design, study environment, study subjects, and data collection tools.

A- Research design:

Descriptive design was used in this study.

B- Setting:

The current investigation was carried out at Beni-Suef University Hospital's Obstetrics Department. Women in labor are treated at this hospital in Beni-Suef city and the surrounding villages.

C- Study Subjects:

Sample type:

A purposive sample was recruited from the above mentioning settings according to:

Inclusion criteria:

- A laboring woman who is at least 35 years old

- Not smokers
- Not alcoholic or drug-abusing
- Not using any medications that could interfere with pregnancy, such as corticosteroid therapy

Exclusion criteria

• Laboring women who report having heart disease, respiratory conditions, or chronic illnesses

•Laboring women who refused to participate in the study.

• Laboring women under 35 years of age.

Sample Size:

100 laboring women which was the total number of women registered in the Obstetrics department's delivery room and fulfilled the inclusion criteria within the study period of six months.

Tools of data collection:

To achieve the aim of the study data was collected through the following two tools:

Tool I. Structured interview questionnaire to collect maternal socio-demographic data which consisted of two parts

A. Personal data which asked about the mother's age, level of education, occupation, length of marriage, and domicile.

B. Obstetric history which asked about the number of prior pregnancies, delivery, abortions and stillbirth.

Tool II. Impact of advanced maternal age on fetal outcomes

It was adapted from ***Edessy (2024)*** and included questions about fetal complications occur in previous pregnancy such as intrauterine growth retardation, intrauterine fetal death, premature rupture of membrane and its timing, umbilical cord prolapse, fetal distress during labor, abnormal fetal position and fetal death during labor (stillbirth).

Tool III: Impact of advanced maternal age on maternal outcomes:

It was adapted from **Richards et al (2021) and Khalil et al (2023)** and entailed two parts

A. Impact of advanced maternal age on maternal outcome which included questions about

- Frequent attendance at prenatal visits, intended pregnancy, pregnancy complications, gestational age at delivery, and delivery mode
- Indications for elective cesarean sections, such as malposition, malpresentation, prior cesarean sections…etc. Additionally, indications of emergency cesarean section as fetal distress, placenta previa, and accidental hemorrhage.
- Postpartum complications, such as breast abscess, puerperal infection, and postpartum hemorrhage… etc.

B. Impact of advanced maternal age on Neonatal outcome which included data about newborn's weight, sex, congenital abnormalities, NICU admission, newborn death, and the first and five minute APGAR scores.

II- Operational Design:

Preparatory phase:

To learn more about the study, the researcher read both domestic and foreign literature during this period. This aided in the study tool design as well.

Content Validity:

A panel of three professionals from the nursing department of obstetrics and gynecology evaluated the tools to determine their content validity. Changes were made in accordance with their assessment.

Content Reliability:

The Cronbach's Alpha Coefficient Test was used, and the results showed that all of the tools' items were comparatively uniform.

Pilot study:

A pilot study was carried out on ten women, or 10% of the sample. The total sample size does not include those. A month prior to data

collection, this pilot study was carried out. The pilot study's goal was to determine whether the tools were feasible. The primary study sample did not include the pilot sample participants.

Field Work:

Over the course of six months, from January 2025 to June 2025, the researcher worked on the study setting three days a week in order to collect data. All laboring women received regular care upon admission to the labor unit, including a thorough history, physical examination (general, abdominal, and vaginal), and laboratory testing. The researcher began gathering data in the following two stages.

1- Interviewing phase:

The laboring woman's personal information, obstetric history, and past postpartum problems were collected after admission to the labor unit.

Assessment phase: Every laboring woman was assessed regarding the following:

•Fetal complications occur in previous pregnancy such as intrauterine growth retardation, intrauterine fetal death, premature rupture of membrane…etc.

• During the current pregnancy: attendance of prenatal visits, intended pregnancy, pregnancy difficulties, gestational age at delivery, and delivery mode

• Indications for elective cesarean sections, such as malposition, malpresentation, prior cesarean sections……etc. Indications of an emergency cesarean section include fetal distress, placenta previa, and accidental hemorrhage.

• Postpartum complications, such as breast abscess, puerperal infection, and postpartum hemorrhage.

• Neonatal condition as newborn's weight, sex, congenital abnormalities, NICU admission,

newborn death, and the first- and five-minute APGAR scores.

II- Administrative design:

In order to get the competent authorities of the study setting to approve the gathering of data, the faculty of nursing submitted an official letter to them.

Ethical considerations:

Every ethical concern was taken into account at every stage of the investigation, and the researcher protected the subjects' confidentiality and identity. Before any of the pregnant women participated, the researcher gave them a brief explanation of the study's purpose and nature and written consent was taken from each woman that they accept to participate in the study. No ethical code until now.

Statistical analysis:

The collected data were analyzed using statistical package for social sciences (SPSS 22.0) for descriptive statistics in the form of frequencies and percentages for categorical variables. Means and standard deviations were used for continuous variables. Chi square tests ($\chi 2$) were used for correlating categorical variables. Significance level was set at $P<0.05$.

Limitations of the study:

Not every woman cooperated with the collection of personal and past history information. Data was taken from patient sheets the next day, and many computer science activities may be performed throughout the shift night.

RESULTS

Table 1: demonstrates the personal data of the studied women. The mean age was 37.38±2.31, the majority of the women in the study (92%) were between the ages of 35 and 40. In terms of their education, 36% of the women in the study are illiterate. Additionally, 66% of the women in the study lived in rural areas. Ninety-six percent of the women in the study were unemployed.

Figure 1: shows the distribution of the length of marriage for the women under study. Two-thirds of the women in the research (66%) had been married for 10–20 years on average (13.46±4.95).

Table 2: disclosed the women's obstetric history. With a mean number of pregnancies 3.84±1.22, almost half of the women in the study (58%) had three or four prior pregnancies. Additionally, the majority (56%) had three or four prior deliveries, with a mean of 3.62±1.28. The majority (96%) had one or two abortions, with a mean of 0.80±0.40. With a mean of 3.60±1.22, over half of the women in the study (54%) had three to four living children.

Table 3: shows how the current pregnancy results of the women under study were distributed. The current pregnancy was planned for 56% and 58% of the women in the study, respectively, and more than half of them routinely attended prenatal checkups. Ninety-two percent of them were older than 37 weeks gestation. In terms of delivery mode, every woman in the study underwent a caesarean section (CS). Of them, emergency CS was present in 54%. Placenta previa and severe preeclampsia were the most prevalent indications for emergency CS (14%), whereas prior CS was the most common rationale for elective CS (26%). Postpartum hemorrhage was the most frequent problem (30%) among the 36% of women who experienced complications after giving birth.

Figure 2: displays the distribution of the women under study with respect to delivery mode. All of the women in the study (100%) underwent cesarean sections.

Table 4: shows the prevalent distribution of the pregnancy problems experienced by the women under study. In their current pregnancies, half of them (50%) experienced difficulties; the most

frequent ones were antepartum hemorrhage (18%) and preeclampsia.

Table 5: displays the distribution of the current newborn outcomes for the women under study. The first-minute APGAR score (5.46±2.82) was marginally lower than the five-minute APGAR score (5.76±2.88). With a mean weight of 2.31±0.83, over two thirds of the infants (64%) weighed between 1.5 and 3 kg. Jaundice and congenital anomalies were absent in most newborns (80% and 96%, respectively). Thirty-eight percent of women's fetuses were admitted to the NICU.

Table 6: showed the relationship between the delivery mode and the advanced age of the mother. Study maternal ages were statistically significantly correlated with their signs of emergent CS ($\chi 2$ =14.622, P=0.006), present pregnancy problems ($\chi 2$ =5.740, P=0.017), and categories of difficulties ($\chi 2$ =15.360, P=0.000). Just 12% of newborns passed away.

Table 7: summarizes the connection between the mother's advanced age and the current neonatal outcomes. There was a significant correlation between the ages of the mothers in the study and the fetus's weight ($\chi 2$ =5.950, P=0.050), the first-minute APGAR score ($\chi 2$ =18.478, P=0.000), and the five-minute APGAR score ($\chi 2$ =10.283, P=0.006)

Table (1). Frequency distribution of studied women according to their socio-demographic characteristics (n=100).

Socio-demographic Characteristics	No.	%
Age (years)		
– 35 < 40	92	92
– 40 < 45	8	8
Mean±SD	37.38±2.31	
Education		
– Can't read and write	36	36
– Read and write	16	16
– Primary	2	2
– Preparatory	10	10
– Secondary	8	8
– University	28	28
Residence		
– Rural	66	66
– Urban	34	34
Occupation		
– Working	4	4
– Not working	96	96

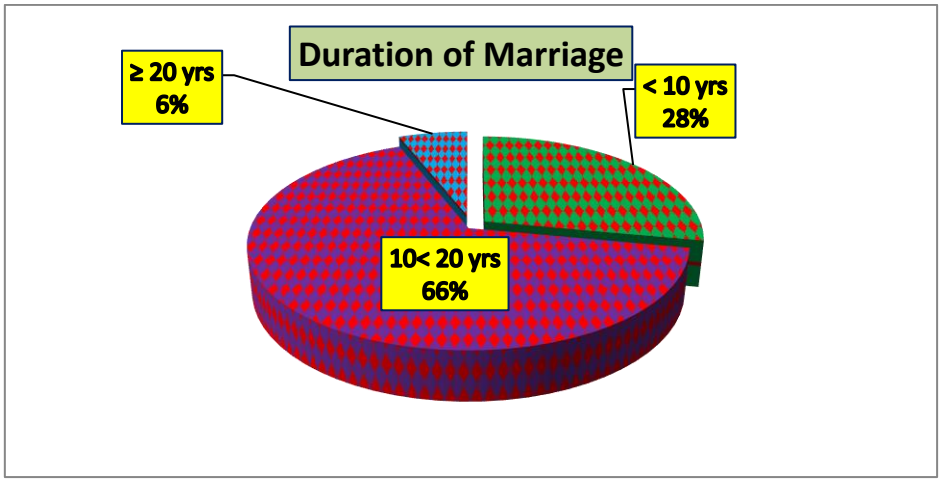

Figure (1) Percentage distribution of studied women according to their duration of marriage (n=100).

Table (2) Frequency distribution of studied women' obstetric history (n=100).

Obstetric History	No.	%
Number of previous pregnancies		
– 1-2	18	18
– 3-4	58	58
– >4	28	28
Mean±SD	3.84±1.22	
Number of previous deliveries		
– 1-2	14	14
– 3-4	56	56
– >4	26	26
Mean±SD	3.62±1.28	
Number of previous abortions		
– 1-2	96	96
– 3-4	4	4
Mean±SD	0.80±0.40	
Number of living children		
– 1-2	20	20
– 3-4	54	54
– >4	26	26
Mean±SD	3.60±1.22	

Table (3) Prevalence distribution of studied women' present pregnancy outcomes (n=100).

Present Pregnancy Outcomes	No.	%
Did the mother attend antenatal visits regularly?		
– Yes	56	56
– No	44	44
Is the current pregnancy intended (planned)?		
– Yes	58	58
– No	42	42
Gestational age at the time of the current birth		
– < 37 weeks	4	4
– ≥ 37 weeks	92	92
– ≥ 40 weeks	4	4
What is the type of cesarean section?		
– Elective	46	46
– Emergency	54	54
Indications for elective cesarean section		
– Failure of labor progress	2	2
– Previous cesarean section	26	26
– Abnormal fetal position	4	4
– Oligohydramnios	14	14
Indications for emergency cesarean section		
– Placenta previa	14	14
– Accidental hemorrhage	10	10
– Fetal distress	12	12
– Severe preeclampsia	14	14
– Umbilical cord prolapse	6	6
Did the mother have complications after the current birth?		
– Yes	36	36
– No	64	64
If yes, what are these complications?		
– Postpartum hemorrhage	30	30
– Puerperal sepsis	2	2
– Breast abscess	4	4

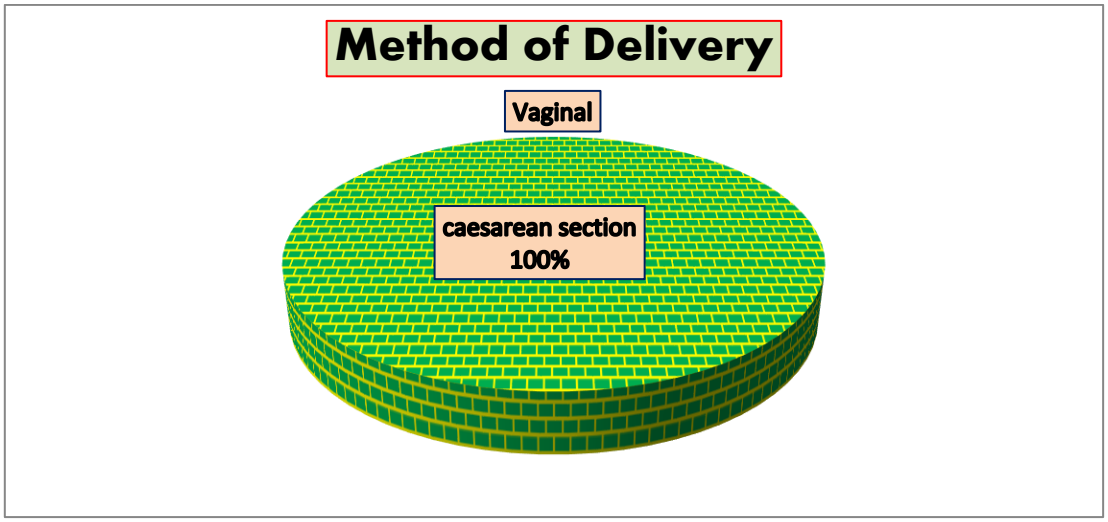

Figure (2): method of delivery in the current pregnancy (n=100).

Table (4) Prevalence distribution of studied women' complications during present pregnancy (n=100).

Present Pregnancy Outcomes	No.	%
Did the mother have complications during the current pregnancy?		
– Yes	50	50
– No	50	50
If the answer is yes, what are these complications?+		
– Preeclampsia	18	18
– Gestational Diabetes mellitus	14	14
– Bleeding in early pregnancy	2	2
– Antepartum hemorrhage	18	18
(+) this variable is no mutually exclusive i.e subjects may have more than one complication at a time		

Table (5) Frequency distribution of studied women present newborn outcomes (n=100).

Present Newborn Outcomes	No.	%
First minute APGAR score		
– < 4	32	32
– 4<7	40	40
– ≥7	28	28
Mean±SD	5.46±2.82	
Five minute APGAR score		
– < 4	28	28
– 4<7	36	36
– ≥7	36	36
Mean±SD	5.76±2.88	
Weight of the fetus		
– <1.5 kg	26	26
– 1.5 -3 kg	64	64
– > 3 kg	10	10
Mean±SD	2.31±0.83	
Did the fetus has jaundice		
– Yes	20	20
– No	80	80
Are there any congenital abnormalities in newborns?		
– Yes	4	4
– No	96	96
Had the fetus been admitted to NICU?		
– Yes	38	38
– No	62	62
Did the fetus die after birth?		
– Yes	12	12
– No	88	88

Table (6) Relation between advanced maternal age and method of delivery (n=100).

Present maternal outcomes	Age				χ^2	P-value
	35 < 40		40 < 45			
	No.	%	No.	%		
Method of Delivery						
– Caesarean	92	92	8	8	-	-
Indications of elective CS						
– Failure of labor progress	2	2	0	0	-	-
– Previous CS	26	26	0	0		
– Abnormal fetal position	4	4	0	0		
– Oligohydramnios	14	14	0	0		
Indications of emergent CS						
– Placenta previa	14	14	0	0	14.622	0.006**
– Accidental hemorrhage	6	6	4	4		
– Fetal distress	8	8	4	4		
– Severe preeclampsia	14	14	0	0		
– Umbilical cord prolapse	6	6	0	0		
Complication after current birth						
– Yes	30	30	6	6	5.740	0.017*
– No	62	62	2	2		
Types of complications						
– Postpartum hemorrhage	28	28	2	2	15.360	0.000**
– Puerperal sepsis	0	0	2	2		
– Breast abscess	2	2	2	2		

Table (7) Relation between advanced maternal age and present new born outcomes (n=100).

Newborn outcomes	Age				χ^2	P-value
	35 < 40		40 < 45			
	No.	%	No.	%		
First minute APGAR score						
– < 4	24	24	8	8	18.478	0.000**
– 4-7	40	40	0	0		
– > 7	28	28	0	0		
Five minutes APGAR score						
– < 4	22	22	6	6	10.283	0.006**
– 4-7	34	34	2	2		
– > 7	36	36	0	0		
Is the fetus full term						
– Yes	88	88	8	8	0.362	0.547
– No	4	4	0	0		
Weight of the fetus						
– <1.5 kg	22	22	4	4	5.950	0.050*
– 1.5 -3 kg	62	62	2	2		
– > 3 kg	8	8	2	2		
Jaundice						
– Yes	20	20	0	0	2.174	0.140
– No	72	72	8	8		
Admission to NICU						
– Yes	36	36	2	2	0.624	0.430
– No	56	56	6	6		
Fetal death after birth						
– Yes	10	10	2	2	1.392	0.238
– No	82	82	6	6		

Discussion

Four primary sections were used to convey the study's findings: the women's personal characteristics, obstetric history, current maternal and neonatal outcomes, and the impact of maternal age on pregnancy outcomes.

The following characteristics of the women in the study were revealed: The bulk of the women in the study were in the 35–40 age range, with a mean age of 37.38±2.31. Approximately one-third of the women in the survey have no formal education. With a mean marriage duration of 13.46±4.95, nearly two-thirds of the women in the study were married for ten to twenty years. Additionally, the majority of the women in the study were unemployed and about two-thirds lived in rural areas.

In accordance with the present study findings, **AbdAllah etal. (2020)** examined three age groups in the study at Assiut University Women Health Hospital, the study "Effect of women's age on the maternal and fetal outcomes" was conducted. The average age of the third age group was 36.89±1.52, with the majority being housewives and living in rural areas, with nearly half being illiterate and only able to read and write.

In addition, **Debelo etal. (2020)** revealed that the average age of the participants in the study "Risk of Selected Fetal Adverse Pregnancy Outcomes at Advanced Maternal Age: A Retrospective Cohort Study in Debre Markos Referral Hospital, Northwest Ethiopia" was 38.11.2.13 years. More than half of them were housewives, living in rural regions, nearly two-thirds had been married for more than ten years, and the majority lacked formal education.

Concerning number of previous pregnancies and deliveries, in the current study, the majority of AMA women had a history of one or two abortions, less

than one fifth were primipara, more than half were multipara, and nearly one-fourth were multipara. **Debelo et al. (2020)** showed the same outcomes. Contrary to the results of the current investigation, **AlJahdali & AlSinani (2022)** in a study called "Pregnancy outcomes at advanced maternal age in a tertiary Hospital, Jeddah, Saudi Arabia" discovered that two-thirds of AMA women were grand multipara, none of them were primipara, and almost one-third were multipara. From the researcher point of view, the Saudi population's continued preference for larger families may be the cause of the increased great multiparity at advanced maternal age.

As Regards attendance of antenatal visits, According to the current study, almost half of women went to routine prenatal care. Conversely, **Debelo et al. (2020)** found that the majority of women regularly attended prenatal care follow-ups, with frequent follow-ups throughout the final month of pregnancy. Contrary to the results of the current investigation, **Mnabwiru etal. (2024)** in the study "Impact of advanced maternal age on perinatal outcomes in Tanzania: Insights from Kilimanjaro Christian Medical Centre Birth Registry" discovered that almost all women over 35 attended prenatal care consultations.

Concerning intended or planned pregnancy after age of 35, According to the current survey, less than half of women had unplanned pregnancy. In a similar vein, **Masembe etal. (2024)** in a cross-sectional study called "Adverse maternal outcomes and associated factors among mothers of advanced age delivering at a tertiary hospital, southwestern Uganda" found that over half of AMA women were not preparing for this pregnancy. From the researcher point of view, unplanned pregnancies among Arabs frequently result from the husband's decision to have more children, the

misuse of contraception, or the loss of one of the sons.

Towards maternal complications during the current pregnancy, the current study found that less than one-fifth of the women in the study experienced complications as preeclampsia, gestational diabetes mellitus, early pregnancy bleeding, and antepartum hemorrhage.

Similarly, the same percentages were reported by **Ibrahim etal. (2024)** and **Hochler et al. (2023)** Both studied "The effect of advanced maternal age on pregnancy outcomes: A prospective study" and "The Impact of Advanced Maternal Age on Pregnancy Outcomes: A Retrospective Multicenter Study" were conducted at the obstetrics and gynecology department of Mansoura and the other study at University Hospitals in Bengladish.

In contradiction with the present study findings, **Dibaba etal. (2021)** stated that nearly half of pregnant women between the ages of 35 and 44 was complicated with antepartum hemorrhage, and they were significantly four times more likely to present with the condition than mothers between the ages of 15 and 24: a study titled "Risk factors of antepartum haemorrhage among mothers who gave birth at Suhul General Hospital: A case–control study" performed in Ethiopia.

From the researcher point of view, sclerotic alterations on intra-myometrial arteries may be the cause of higher obstetric complications in older mothers. As a result, the placenta's blood supply may be diminished.

Pertaining mode of delivery, less than half of the ladies in this study had elective CS, and none of the women gave birth vaginally. However, emergency CS was suggested in almost half of women.

In the same line, **Ibrahim etal. (2024)** stated that the majority of women were delivered by caesarean

section, and that although CS was elective for the remaining one-third of women with the same percentage of placenta previa and accidental hemorrhage, emergency caesarean section was recommended for less than two-thirds of women with the same percentage of oligohydramnios and malpresentation. From the researcher point of view, these parallels can be linked to similar data collection tools.

On the contrary, **Taha (2024)** reported nearly two thirds of women in their advanced maternal age group gave birth vaginally, while nearly one third did so via caesarean section, based on a study conducted in Abu Dhabi, United Arab Emirates, on the obstetric and sociodemographic features of older mothers. From the researcher point of view, less adverse pregnancy outcomes could be caused by the free provision of high-quality care for all parturient women.

Regarding timing of delivery, less than one-fifth of deliveries among women of advanced maternal age were preterm, as the current study clearly shows. However, **Ibrahim etal. (2024)** showed higher percentage of preterm labor in more than one fourth of AMA women. Also, **Akseer et al. (2022)** in the United Kingdom, a study titled "Characteristics and birth outcomes of pregnant adolescents compared to older women: an analysis of individual level data from 140,000 mothers from 20 RCTs" found that nearly one-fourth of AMA women experienced complications from preterm labor. However, **Taha (2024)** showed very low percentage of preterm labor than the present study.

As for postpartum complications, in the current study, a very low number of women experienced puerperal sepsis and breast abscess, and less than two thirds of women experienced no postpartum problems. Additionally, less than one third of women

experienced postpartum hemorrhage during the postpartum period following the current birth. The same proportions were stated by **Hochler etal. (2023).** On the contrary, **AlJahdali & AlSinani (2022)** in a study called "Pregnancy outcomes at advanced maternal age in a tertiary Hospital, Jeddah, Saudi Arabia" revealed that postpartum hemorrhage and retained placenta were extremely uncommon among AMA women over 40, and the majority of them had no postpartum issues.

Pertaining Neonatal outcome, nearly three quarters of the newborn in the current study had an APGAR score of less than seven at the first minute, and fewer than two thirds at the fifth minute. On the other hand, **Hochler etal. (2023)** made sure that a very small percentage not more than ten percent of AMA women's newborns experienced birth asphyxia or a 5th minute APGAR score below 7.

Additionally, **AlJahdali & AlSinani (2022)** also went against the predetermined study, stating that the majority of AMA women's newborns had normal APGAR scores, with a very small number having a score below 7.

Concerning birth weight, nearly one-fourth of the newborns in this study were born weighing less than 1.5 kg. Contrary to the results of the current investigation, **Ibrahim etal. (2024)** discovered that the percentage of extremely low birth weight and the mean newborn weight were lower than those in the current study. Additionally, **Taha (2024)** showed that most of newborn their weight was > 2.5 kg with a very low percentage of weight < 2.5 kg. In addition, **AlShami etal. (2021)** according to a study titled "Pregnancy outcome in late maternal age in a high-income developing country" at the women's health department at Al Ain Hospital in Al-Ain, United Arab Emirates, there was

no appreciable difference in low birth weight between the young group and AMA. The researcher claims that the various study settings with regard to differences in obstetrical practice and therapeutic advancements can explain this disparity.

Pertaining NICU admission, in the present study more than one third of newborn was admitted to NICU. Similarly, **Ibrahim etal. (2024)** revealed the same percentage of NICU admission. On the other hand, **AlJahdali & AlSinani (2022)** discovered that a relatively small portion of AMA women's newborns were admitted to the NICU.

As for other newborn outcomes, nearly 10% of newborns died after birth, 5% of newborns experienced jaundice, and a very small number had congenital defects.

In agreement with the present study findings, **Ibrahim etal. (2024)** showed the same proportion of congenital defects and early neonatal deaths, and the same proportion of stillbirths were verified by **Debelo etal. (2020).** Moreover, **Lean etal. (2022)** studied "Advanced maternal age and adverse pregnancy outcomes: a systematic review and meta-analysis" Manchester, UK study. With 44,723,207 babies, 9.0% of which were stillborn, this extensive meta-analysis of 44 researches was conducted at AMA (OR 1.75, 95% CI 1.62–1.89). They postulated that vascular malfunction brought on by advanced age was the cause of the stillbirth, which was linked to placental aging.

On the other hand, **Attali & Yogev (2021)** in a Korean study on "The impact of advanced maternal age on pregnancy outcome" found that AMA women were twice as likely to have cardiac abnormalities, esophageal atresia, and craniosynostosis as the reference group of women between the ages of 25 and 29.

Regarding relation between advanced maternal age and

present maternal and neonatal outcomes, regarding older age groups over 40, the current study found a strong correlation between the ages of 35 and 40 with the occurrence of antepartum hemorrhage, emergency CS, postpartum problems, and low newborn APGAR scores at the 1st and 5th minutes. According to the researcher, this can be explained by the fact that the majority of the study group consisted of mothers between the ages of 35 and 40.

On the other hand, **Ibrahim etal. (2024)** found that, in terms of maternal and newborn outcomes, there was no statistically significant difference between AMA and extremely AMA; nevertheless, when contrasted with the young age group of individuals under 35, these two categories were linked to significantly worse maternal and neonatal outcomes.

Conversely, **Rydahl etal. (2020)** studied "Caesarean section on a rise-Does advanced maternal age explain the increase?" revealed that emergency CS was more common at VAMA in Denmark (aOR 3.64, 95% CI 3.41–3.90) than at AMA (aOR 2.18, 95% CI 2.11–2.26).

CONCLUSION

The results of the current study suggested that maternal outcomes were impacted by advanced age in the following ways: Pregnancy complications affected half of the women. All of them were delivered by CS during labor, and in over half of them, emergency CS was recommended. Nearly one-third of women experienced complications as postpartum hemorrhage. Regarding neonatal outcomes, most newborns had poor APGAR scores (less than 7) at the first and fifth minutes. Over one-third of the newborns were admitted to NICU, nearly one-fourth of them were born weighing less than 1.5 kg, one-fifth experienced jaundice, and nearly one-fifth died.

RECOMMENDATIONS

According to the present study findings, it can be concluded that:

• Nurses should urge AMA women to attend prenatal appointments on a regular basis from the start of their pregnancy until delivery in order to detect and treat complications early.

• Women's knowledge of potential AMA pregnancy problems should be raised by mass media and social media.

• Further studies are recommended as:

Effect of an educational program on knowledge and attitude of child bearing age women regarding pregnancy at advanced age.

REFERENCES

- **AbdAllah A S, Abbas A M, Ahmed N H & El-Dien H A. (2020).** Effect of women's age on the maternal and fetal outcomes, Assiut Scientific Nursing Journal; 8(20), PP: 122-131.
- **Akseer, N., Keats, E.C., Thurairajah, P., Cousens, S., Bétran, A.P., Oaks, B.M., et al. (2022).** Characteristics and birth outcomes of pregnant adolescents compared to older women: an analysis of individual level data from 140,000 mothers from 20 RCTs. eClinicalMedicine, Vol. 45, p. 101309.
- **AlJahdali E A, AlSinani N S. (2022)**. Pregnancy outcomes at advanced maternal age in a tertiary Hospital, Jeddah, Saudi Arabia. Saudi Med J; Vol. 43 (5): 491-499.
- **AlShami H. A. A., Kadasne A. R., Khalfan M., Iqbal S. Z., and Mirghani H. M. (2021).** Pregnancy outcome in late maternal age in a high-income developing country. Archives of Gynecology and Obstetrics, vol. 284, no. 5, pp. 1113–1116.
- **Bradley, S. (2022).** Standards of Medical Care in Diabetes-2016

Abridged for Primary Care Providers. Clinical diabetes, 34(1), 3-21.

- **Cano, F., Simon, C., Remohi, J., & Pellicer, A. (2019).** Effect of aging on the female reproductive system: evidence for a role of uterine senescence in the decline in female fecundity. Fertility and Sterility, 64(3), 584-589.
- **Davidge ST, Morton JS and Rueda-Clausen CF. (2021).** Oxygen and perinatal origins of adulthood diseases: is oxidative stress the unifying element? Hypertension 52: 808–810.
- **Debelo B T, Asratie M H and Solomon A A. (2020).** Risk of Selected Fetal Adverse Pregnancy Outcomes at Advanced Maternal Age: A Retrospective Cohort Study in Debre Markos Referral Hospital, Northwest Ethiopia. Obstetrics and Gynecology International; 7(2): 1-7.
- **Edessy M. (2024).** Pregnancy outcome in elder women in Egypt. Int. J. Adv. Res. Biol.Sci. 2(4): 92–99.
- **Fayed AA, Wahabi H, Mamdouh H, Kotb R, Esmaeil S. (2024).** Demographic profile and pregnancy outcomes of adolescents and older mothers in Saudi Arabia: analysis from Riyadh Mother (RAHMA) and baby cohort study. BMJ Open; 7: e016501.
- **Fitzpatrick, K. E., Tuffnell, D., Kurinczuk, J. J., & Knight, M. (2020).** Pregnancy at very advanced maternal age: a UK population-based cohort study. The BJOG, 124(7), 1097-1106
- **Gluckman PD, Hanson MA, Cooper C, Thornburg KL. (2020).** Effect of in utero and early-life conditions on adult health and disease. N Engl J Med 359: 61–73.

- **Hansen, K. R., Knowlton, N. S., Thyer, A. C., Charleston, J. S., Soules, M. R., & Klein, N. A. (2018).** A new model of reproductive aging: the decline in ovarian non-growing follicle number from birth to menopause. Human Reproduction, 23(3), 699-708.
- **Hochler, H.; Lipschuetz, M.; Suissa-Cohen, Y.;Weiss, A.; Sela, H.Y.; Yagel, S.; Rosenbloom, J.I.; Grisaru-Granovsky, S.; Rottenstreich, M. (2023).** The Impact of Advanced Maternal Age on Pregnancy Outcomes: A Retrospective Multicenter Study. J. Clin. Med., 12, 5696.
- **Ibrahim R M, Mosbah M A, Zayed A A, Kamel M E. (2024).** The effect of advanced maternal age on pregnancy outcomes: A prospective study. Egypt.J.Fertil.Steril. Volume 28, Number 4: 105-115.
- **Impact S, No P. (2023).** Induction of labour at term in older mothers. R Coll Obstet Gynaecol -Scientific Impact Pap;34.
- **Islam M. M. and Bakheit C. S. (2020).** Advanced maternal age and risks for adverse pregnancy outcomes: a population-based study in Oman. Health Care for Women International, vol. 36, no. 10, pp. 1081–1103.
- **Khalil A, Syngelaki A, Maiz N, Zinevich Y, Nicolaides KH. (2023).** Maternal age and adverse pregnancy outcome: a cohort study. Ultrasound Obstet Gynecol;42(6):634–643.
- **Khalil RA. (2023).** Estrogen, vascular estrogen receptor and hormone therapy in post-menopausal vascular disease, Biochem. Pharmacol. 86 (12): 1627–1642 .
- **Lean SC, Derricott H, Jones RL, Heazell AEP. (2022).** Advanced maternal age and

adverse pregnancy outcomes: a systematic review and meta-analysis. *PLoS One*.;12(10):e0186287.

- **Mahmoud Edessy, (2024).** Pregnancy outcome in elder women in Egypt. Int. J. Adv. Res. Biol.Sci. 2(4): 92–99.
- **Masembe S, Migisha R, Turyasingura G, Aheisibwe H, Nzabandora E and Lule J C. (2024).** Adverse maternal outcomes and associated factors among mothers of advanced age delivering at a tertiary hospital, southwestern Uganda: a cross-sectional study. BMC Pregnancy and Childbirth; 24:348.
- **Mnabwiru L R, Cho Y S, Mahande M J, Mazugun N, Mchome B L, Park E Y. (2024).** Impact of advanced maternal age on perinatal outcomes in Tanzania: Insights from Kilimanjaro Christian Medical Center Birth Registry. Heliyon; 10: 1-8, e24608.
- **Nieto M, Barrabes E, Martínez S, Prat M, Zantop B. (2020).** Impact of aging on obstetric outcomes: defining advanced maternal age in Barchelona. BMC Pregnancy Childbirth;19(1):342.
- **Rydahl E, Declercq E, Juhl M, Maimburg RD. (2020).** Cesarean section on a rise-Does advanced maternal age explain the increase? A population register-based study. *PLoS One*;14(1):e0210655
- **Santos GHN, Martins MG, Sousa MS, Batalha SJC. (2019).** Impacto da idade materna sobre os resultados perinatais e via de parto. Ver Bras Ginecol Obstet [Internet];31(7):326-34. Disponível em: Disponível em: http://www.scielo.br/pdf/rbgo/v31n7/v31n7a02.pdf
- **Shan D., Qiu P. Y., Wu Y. X., Chen Q., Li A. L., and**

Ramadoss S. (2021). Pregnancy outcomes in women of advanced maternal age: a retrospective cohort study from China. Scientific Reports, vol. 8, no. 1, p. 12239.

- **Šprocha B, Tišliar P, Šídlo L. (2020).** A cohort perspective on the fertility postponement transition and low fertility in Central Europe. Morav Geogr Rep;26:109–20.
- **Statistical Center of Iran (2020).** According to the 2020 census total fertility rate of Iran reached to 2.01 between 2011 and 2020 [Persian] Available from: https://www.amar.org.ir/news/ID/5080
- **Taha Z. (2024).** Socio-demographic and obstetric characteristics of advanced maternal age in Abu Dhabi, United Arab Emirates. Nutrition & Food Science; Vol. 55 No. 1, pp. 180-192.
- **The American College of O and G. (2023).** Hypertension in pregnancy. Report of the American College of Obstetricians and Gynecologists' Task Force on Hypertension in Pregnancy. Obstet. Gynecol, 122, 1122–1131.
- **Wang Y., Tanbo T., Abyholm T., and Henriksen T. (2021).** Impact of advanced maternal age and parity on obstetric and perinatal outcomes in singleton gestations. Archives of Gynecology and Obstetrics, vol. 284, no. 1, pp. 31–37,